VANCOUVER ISLAND
WOLF CONTROL PROGRAM
PROGRESS REPORT
April 1, 1986 to April 30, 1987

Ministry of Environment and Parks
Nanaimo, B.C.

Wildlife Working Report No. WR-28
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INTRODUCTION

This report summarizes the progress of the first year of an approved 3-year program to reduce wolf numbers on Vancouver Island. The rationale for wolf control and details of program design are outlined in Janz and Hatter (1986).

Wolf densities on northern Vancouver Island (Fig. 1) have declined substantially from the levels evident in the late 1970's, due to the 70-80% decline in deer numbers resulting from wolf predation. Although wolf densities have decreased, deer numbers are still low throughout most of the north Island. Wolf densities on the south Island began to increase in the early 1980's with a consequent severe impact on many deer herds, although at present, not to the same magnitude as occurred on the north Island (Janz and Hatter 1986).

Objectives of the program are to:

1) Reduce wolf numbers on northern Vancouver Island to 1 wolf/150 km^2 to allow recovery of important deer herds;

2) Initiate wolf reduction on southern Vancouver Island as required to minimize deer declines and subsequent recovery time; and

3) Ensure the continued existence of wolves, and the long-term maintenance of the predator-prey system.

Due to limitations of access, 50-60% of the Island will not be subjected to intensive control measures.

METHODS

As trapping is the only proven methodology available at present to reduce wolf numbers on Vancouver Island, the program was designed to encourage public trappers to trap wolves during the regular trapping season (November 15 to April 30), and to hire proficient trappers on contract. Training workshops were held and wolf traps were provided to interested registered trappers on a loan basis. Contract trappers were requested to provide information on sex, age, weight, and reproductive status of trapped wolves.

Evaluation of the program consisted of recording the number of wolves removed, and monitoring the subsequent response of deer populations in five representative areas (Nimpkish, Adam, White, Nanaimo River and Nanaimo Lakes). The wolf hunter sighting index and estimated wolf densities in watersheds receiving wolf control were used to evaluate the effectiveness of trapping efforts. Estimates of wolf numbers were based on field surveys by Ministry staff, observations by public and contract trappers, and reports by woodworkers and the general public.

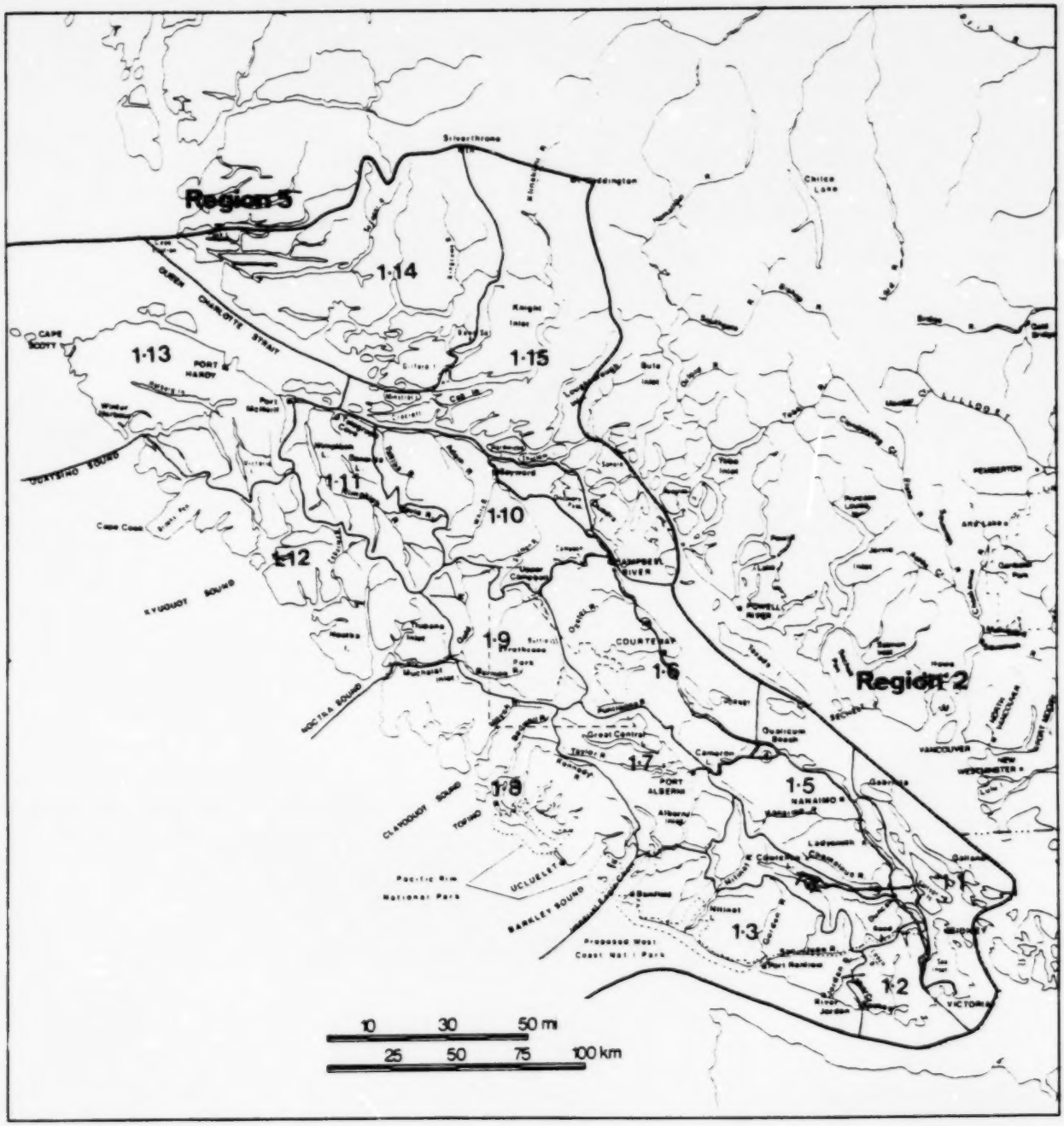


Figure 1. Wildlife Management Units (M.U.'s) on Vancouver Island. Southern Vancouver Island refers to M.U.'s 1 to 8, and northern Vancouver Island from M.U.'s 9 to 13.

To complement wolf reduction and assist deer recovery, antlerless hunting seasons were cancelled in all areas receiving wolf control, and male deer bag limits were reduced from 3 to 2 deer in 1986.

RESULTS

REGISTERED TRAPPERS

Four training workshops were held prior to the 1986/87 trapping season, attended by approximately 80-90 people. Two hundred padded traps were purchased by the Ministry of Environment and Parks and loaned to 31 of these trained trappers. A wolf trapping video was also prepared and will be available on loan to interested trappers for the 1987/88 season. Thirty-three wolves were trapped by public trappers.

CONTRACT TRAPPERS

Three contract trappers were employed periodically over the past year. Areas receiving more intensive trapping effort by contractors were: M.U.'s 2 and a portion of 3 (south of the San Juan River); M.U. 10 (Salmon, White, Adam/Eve); and M.U. 13 (Alice/Victoria Lakes and Waakwaas/Cluxewe). The contractors removed 38 wolves in 156 man-days of effort. The majority of wolves (26) were removed from the south Island (M.U.'s 2 and 3). Information on sex/age and condition of trapped wolves will be analyzed and reported in the 1987/88 progress report.

MINISTRY STAFF

Seventeen wolves were trapped by Ministry staff over the reporting period. Three were removed from the Nimpkish study area, and the remainder were removed from the south Island (M.U.'s 3, 4 and 5).

WOLF REMOVAL BY MANAGEMENT UNIT

The number of wolves removed by trapping (public trappers, contractors, and Ministry staff) and hunting (January to December, 1986) by M.U. are summarized in Table 1. Hunting removals are based on compulsory inspection data, and are considered to be minimum estimates of hunting mortality. A total of 88 wolves were killed by trapping, and 16 by hunting, for a known (minimum) removal of 104 wolves.

Table 1. Number of wolves removed by trapping (April, 1986 - April, 1987) and hunting (January, 1986 - December, 1986) by management unit.

Source	M.U.											
	2	3	4	5	6	7	8	9	10	11	12	13
Trapping	26	22	8	2	2	2		2	14	5	1	4
Hunting	2		1	4		4	1	2	1	1		
TOTAL	28	22	9	6	2	6	1	4	15	6	1	4

WOLF HUNTER SIGHTING INDEX

The hunter sighting index is based on the number of wolves observed per unit effort by deer hunters (number of wolves/hunter day x 100). The index is used to indicate relative abundance of wolves. Because factors influencing observability (degree of access, forest cover, logging development, etc.) are variable throughout the Island, the index may not be directly comparable between areas, but is useful to monitor trends in wolf abundance within management units (Table 2). The values from 1981 to 1985 indicated trends of increasing wolf abundance on the south Island (M.U.'s 2 to 8), and stable to declining numbers on the north Island ($Z = -2.74$, $p = .006$, Mann-Whitney test). The effects of past wolf reduction activities (i.e., M.U. 5, 10 and 11), and the relatively high wolf densities on the west coast (M.U. 12) are also evident. A disadvantage of the index is the 1-year time lag between the field observations and availability of data (hunter sample) to calculate the index. Use of the index to monitor effectiveness of the present control program will not be possible until 1988.

ESTIMATED WOLF DENSITIES

Estimated wolf densities (Table 3) are assumed to be most accurate for M.U.'s 2 to 5, 10, and 11 due to more intensive field assessment in these areas by Ministry staff. The estimated densities, together with the deer population indices, will direct trapping activities over the next year. The present wolf population estimate of 300-450 for Vancouver Island is approximately 70-75% of the estimated population in 1985 (Janz and Hatter 1986: Table 1).

Table 2. Wolf sighting index by management unit on Vancouver Island, 1981-1985

Year	Management Unit											
	2	3	4	5	6	7	8	9	10	11	12	13
1981	.46	2.12	2.40	1.27	2.54	3.60	--	5.22	7.78	9.41	20.52	9.57
1982	.49	3.09	2.15	3.60	2.83	2.06	1.05	9.22	4.72	7.10	19.08	5.63
1983	.36	2.13	3.01	3.18	5.27	5.70	.31	6.40	6.59	10.86	8.70	14.83
1984	1.29	4.62	2.02	2.43	4.21	2.59	4.12	3.80	5.45	3.45	17.95	6.82
1985	2.84	6.35	3.27	2.16	3.68	5.82	7.87	8.87	5.27	4.47	12.98	5.85
Avg.Annual % change	59	30	6	7	12	13	--	2	-6	-20	-9	-8

Table 3. Estimated wolf numbers on Vancouver Island by management unit and major watersheds requiring possible wolf reduction activities, April, 1987.

M.U.	M.U. AREA (km^2)	ESTIMATED WOLF NUMBERS/M.U.	ESTIMATED DENSITY/M.U. (km^2/wolf)	KEY WATERSHEDS REQUIRING WOLF CONTROL BY M.U.	AREA OF WOLF CONTROL/M.U. (km^2)
1	833	<10	>150	None	0
2	914	10 - 20	46 - 91	Sooke, Shawnigan	460
3	2845	10 - 25	114 - 285	Caycuse, Gordon, San Juan	1070
4	1716	10 - 15	115 - 172	Cowichan, Nitinat	1200
5	2531	10 - 20	127 - 253	Chemainus, Nanaimo, Englishman	1710
6	2760	40 - 50	55 - 69	Oyster, Quinsam	980
7	2483	30 - 40	62 - 83	Ash, Franklin, Stamp	900
8	3693	20 - 30	123 - 185	Kennedy	280
9	2444	20 - 30	81 - 122	Gold, Heber, Ucona	1025
10	3547	30 - 40	89 - 118	Accessible watersheds	2270
11	2309	20 - 30	77 - 115	Kokish, Nimpkish	1900
12	3923	50 - 75	52 - 78	Accessible watersheds	1250
13	3908	50 - 75	52 - 78	Accessible watersheds	1950
	33906	300 - 450			14995

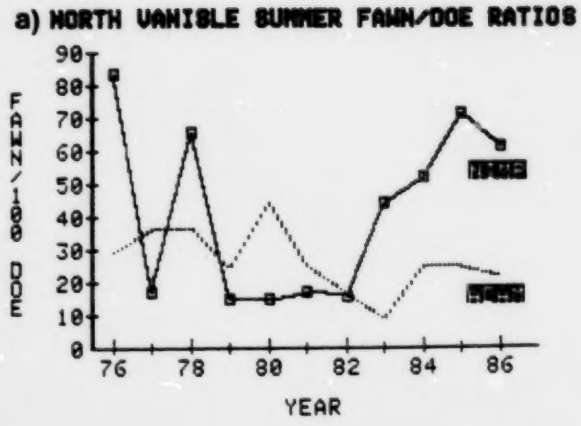
DEER POPULATION INDICES

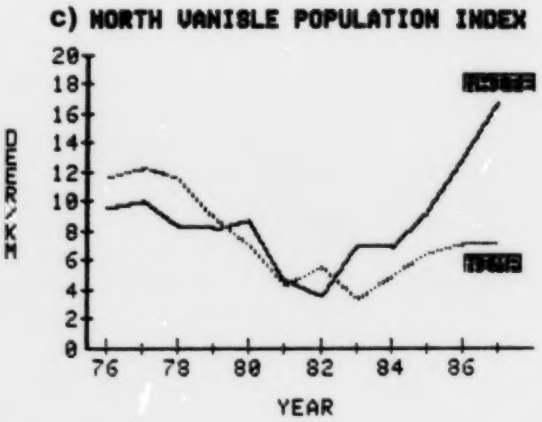
August fawn:doe ratios, spring carryover (percent juveniles in the population), and population trends (deer/km) were measured in five representative watersheds on Vancouver Island. On the north Island, fawn:doe ratios in the Nimpkish (M.U. 11) and Adam (M.U. 10; Fig. 2a) illustrate the effects of wolf control, initiated in the Nimpkish in 1982 (Atkinson and Janz 1986). The decline in the Nimpkish 1986 fawn:doe ratio was reflected in a lower juvenile carryover in 1987 (Fig. 2b), and a corresponding stable population index between 1986 and 1987 (Fig. 2c). Intensive wolf trapping activities in the Nimpkish were terminated in the summer of 1986, and wolf densities have gradually increased since that time (Atkinson and Janz, in prep.).

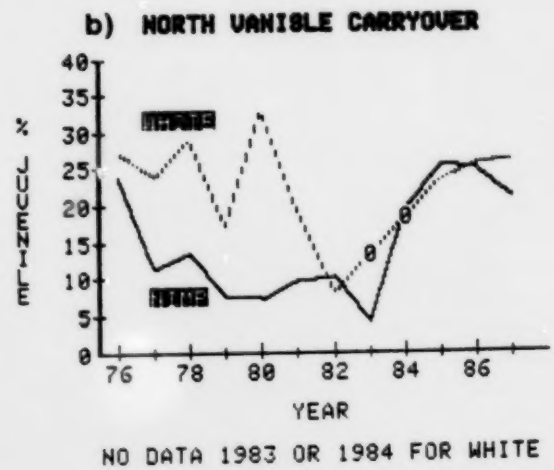
In comparison, the White River (M.U. 10) has been subjected to intensive wolf removal by a local public trapper since 1982, and is relatively wolf-free. Response of the deer population to negligible predation pressure and good habitat conditions was dramatic (Fig. 2b,c), with a population index of 16.8 deer/km recorded in 1987. At the opposite end of the scale, population trend counts were initiated this year in the Alice Lake area (M.U. 13) by local sportsmen and the district Conservation Officer. An average of 0.3 deer/km were observed over 45 km of transects, further substantiating the severely depressed status of the deer population in M.U. 13 (the 1985 harvest of 138 deer in M.U. 13 was less than 10% of the 1978 harvest of 1449).

On the south Island, population indices have been monitored in Nanaimo River Camp (NRC) and Nanaimo Lakes (NL)(M.U. 5). Trends in spring carryover have been similar in these areas since the early 1980's, when periodic wolf removal was initiated by Ministry staff in response to loss of deer to wolf predation in a deer/habitat research study area (Fig. 3a). Thirty-six wolves have been removed from this area since 1982. The somewhat opposite trends in the population index between the two areas (Fig. 3b) reflects declining habitat quality (forest succession) in the NRC, and possible greater predation pressure. Deer hunting regulations have been more liberal in NL than in NRC over the past decade.

Deer population counts were also conducted in the Sooke area (M.U. 2) in 1986 and 1987. The index declined from 5.9 to 3.6 deer/km over the past year, although the magnitude of the decline was likely influenced by weather and early spring conditions, with the deer being less concentrated on recent cutovers during the time of census. Presence of wolves may also have influenced deer use of open habitat.



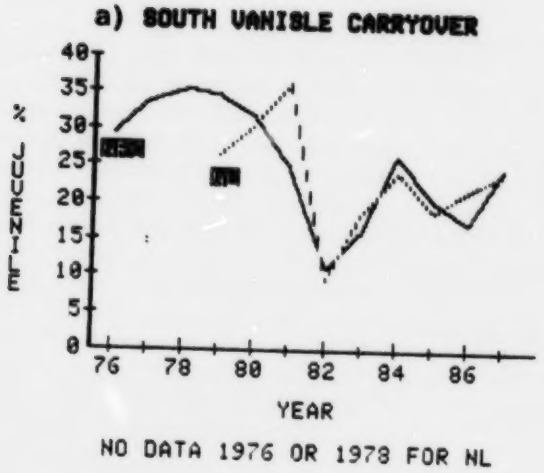




NO DATA 1983 OR 1984 FOR WHITE

Figure 2. Deer population indices on north Vancouver Island:

a) fawn:doe ratios in the Nimpkish and Adam
b) juvenile carryover in the Nimpkish and White
c) deer/km in the Nimpkish and White



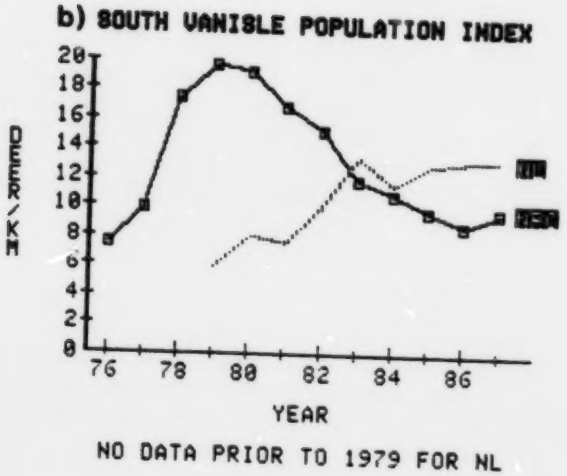


Figure 3. Deer population indices on south Vancouver Island:

a) spring carryover in NRC and NL
b) deer/km in NRC and NL

DISCUSSION

REGISTERED TRAPPERS

The response and success of registered trappers were somewhat disappointing. Seven trappers accounted for the 33 wolves removed, and over 50% of these were trapped by two individuals who requested and received field assistance by Ministry staff. It appeared that many trappers did not fully appreciate the time and effort required to trap wolves effectively.

The mild weather conditions over the winter also hindered trapping success, as wolves (and prey) were dispersed over large areas. In addition, the poor pelt quality of marten, especially on the north Island, resulted in a short field season by many trappers who had planned to trap wolves incidental to marten trapping. Although traps were provided, few trappers were willing to incur the transportation expenses associated with wolf trapping with little opportunity for financial returns.

CONTRACT TRAPPERS

Performance of the contract trappers was satisfactory. The major problem was attempting to find qualified trappers in appropriate locations, especially on the north Island.

DEER RESPONSE

As the program has been in effect for only 1 year, the 1987 spring deer counts were not expected to show a positive response to recent reductions in wolf densities. The 1987 August fawn:doe ratios will provide the first indications of relative predation pressure and deer response (fawn survival), while the 1988 deer/km index will document population response.

WOLF DENSITIES

Densities on the south Island (M.U.'s 2 to 5) are approaching stated target levels of approximately 1 wolf/150 km^2, and it is anticipated that intensive trapping efforts over the next year should maintain wolf numbers at densities that will allow deer recovery and/or minimize deer declines. Areas that require more intensive trapping effort over the next 2 years include M.U. 7 and the north Island (M.U.'s 9, 12 and 13).

RECOMMENDATIONS

As success of the public trappers was related to the degree of field assistance, Ministry staff should attempt to increase this aspect of the program for the 1987/88 trapping season.

Hiring contract trappers should continue. The number of proficient trappers available for contract trapping should gradually increase as public trappers gain experience. The number of qualified trappers on the north Island is presently limiting control efforts in that area.

Given that 1986/87 was the first year of the program, and that winter weather conditions were not conducive to wolf trapping activities, results of the overall program were considered promising. It is recommended that the program continue with emphasis on increasing incentives for wolf trapping. Future direction will be evaluated from results over the next 2 years.

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